IT Unit 3

Topic 1

**TOPIC TEST**

**Topic 1 – Organisations and data management**

1. **Multiple Choice Questions (1 mark each)**

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| 1.1 | The major reasons for supplying data via websites are: |
|  | 1. Convenience 2. Variety of choice 3. Reduce costs 4. All of the above |
| 1.2 | Which of the following is not an appropriate design tool for creating a RDBMS? |
|  | 1. Entity relationship diagram 2. Data structure table 3. Data structure diagram 4. Storyboard |
| 1.3 | A cookie can be used: |
|  | 1. to keep websites secure 2. to keep track of data about users who visit a website 3. to trace the websites you have created 4. to leave a message for the creators of a website |
| 1.4 | The most appropriate validation technique for ensuring the correct age of a person has been entered into a field would be: |
|  | 1. A range check to ensure the figure is less than 100. 2. Proof reading 3. A range between 0 – 110. 4. Checking the entered data against the original data. |
| 1.5 | A more effective information system would be one that: |
|  | 1. Allows quicker and easier data entry 2. Lets more users gain access to the system 3. Has in-built validation techniques 4. Produces more accurate reports |
| 1.6 | When analysing an information problem the first area to investigate would be: |
|  | 1. Solution requirements 2. Scope of solution 3. Solution criteria 4. Solution constraints |
| 1.7 | HTTPS refers to: |
|  | 1. Hypertext transfer protocol safe 2. A protocol which provides security to a website 3. The code in which a website has been written 4. None of the above |
| 1.8 | Performing manual calculations to check the results of formulae would occur at which stage of problem solving? |
|  | 1. Analysis 2. Design 3. Testing 4. Evaluation |
| 1.9 | A data structure diagram: |
|  | 1. Lists out the different fields in a table and their data types 2. Is better suited to websites than a RDBMS 3. Shows the relationship between the tables and fields in a relational database 4. Is another name for a layout diagram |
| 1.10 | What is the purpose of an entity relationship diagram? |
|  | 1. Explains how each field should be set up in a table 2. Depicts how a user will interact with data collections tools 3. Illustrates the relationships and links between tables 4. Establishes the interrelationships between different data elements |
| 1.11 | Which of the following would not improve the efficiency of an information system? |
|  | 1. Decreasing data entry time 2. Improving quality of output 3. Reducing costs of data entry 4. Increasing the speed of the processing cycle |
| 1.12 | Which of the following would be the most appropriate name for a primary key field appearing in a table for customers? |
|  | 1. Customer code 2. Code for customers 3. CusCode 4. Customer\_code |
| 1.13 | Setting a field to only accept a specified number of digits is an example of: |
|  | 1. A range check 2. An existence check 3. Manual validation 4. An input mask |
| 1.14 | Data normalisation involves: |
|  | 1. Following a systematic set of rules to check for problems in data structure 2. Means to only include one item in each field 3. Making sure the data is either text, number, calculation or data format 4. All of the above |
| 1.15 | The characteristics of an audience are an important factor at the design stage because: |
|  | 1. They will impact on the output requirements 2. They will impact on the cost of the solution 3. The audience may not be ready for the solution 4. The audience may be colour blind |
| 1.16 | A field that uniquely identifies each record in a database table is known as: |
|  | 1. A one-to-many relationship 2. Secondary key 3. Primary key 4. Customer code |
| 1.17 | The role of a macro when using a database is: |
|  | 1. To make sure steps are done in the correct order 2. To replace macros 3. To improve efficiency by automating certain procedures 4. Turns results of a query into useable information |
| 1.18 | A dynamic webpage is one that: |
|  | 1. Is always up-to-date 2. Takes control of the other pages in a website 3. Is used to test the features of a website before making it fully functional 4. Changes as requested by the user |
| 1.19 | The advantages of a relational database are: |
|  | 1. They store data relationships between tables and reduce data redundancy 2. They allow validation of data as it is entered 3. The relationships between data are based on the criteria created 4. They are simpler to use than flat file databases |
| 1.20 | A one-to-many relationship refers to when: |
|  | 1. There is only one unique identifier 2. The contents of the field can appear only once in one table but more than once in another 3. When the primary key is the unique identifier 4. Would occur in an athletics program because more than one athlete can be in an event |

(20 marks)

**Short Answer Questions**

1. Distinguish between formal and informal testing.

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| *Informal testing is conducted as the solution is being developed. Formal testing is completed once the solution is completed. It involves a test plan to ensure that all area of the solution are tested.* |

(1 mark)

1. Data collection was formerly done using hand-written forms. Now many organisations collect it via a website. What are the advantages of collecting the data online for the organisation as opposed to the old method?

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| *It improves efficiency because staff don’t need to be supplied to enter the data and the time lapse is reduced (almost instantaneous).*  *It also improves effectiveness because it eliminates transcription errors and problems with poor hand writing. Also by not accepting incomplete data or data in the wrong format the quality of the data is improved.* |

(3 marks)

1. Distinguish between a data-entry layout and a report layout in a database. Which layout would have more emphasis on efficiency and which would have more emphasis on effectiveness? Explain your answer.

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| *Data entry layouts are used to enter the data into a database. They only contain one record per screen. The main emphasis is on efficiency as the data should be entered quickly with a minimal cost. For example using pop up lists or look-ups will increase the speed of data entry.*  *A report layout should be designed to enhance the communication of the message and as such focus on effectiveness of the output. Reports will have multiple records per screen. Examples of improving effectiveness include proper labels and titles, aligning and sizing text and use of calculation fields to ensure accuracy.* |

(3 marks)

**Case Study**

Charlton Travel is a travel agency servicing the needs of the Charlton community. At present they are limited in the size of their market due to the size of the town. The manager has seen an opportunity to expand the business by offering services to other communities in the North west of the state that do not have access to a local travel agent. It has been suggested that this could be done by providing a service on-line, via a web page. This would allow customers to view what was available and to make bookings on-line. You have been employed as an IT consultant to help the business solve its information problem.

Draw a diagram that shows the tables and relationships that could exist in a RDBMS that you could create to help solve this problem. What is the name of this type of diagram?

* Tour No
* Destination
* Customer No
* Customer Name
* Customer Address
* Booking No
* Customer No
* Customer Name
* Tour No
* Date of Booking
* Destination

Type of diagram: *Data Structure Diagram*

(4 marks)

Which of the relationships would be a one-to-many relationship? Explain why.

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| *Customer No to Customer No*  *A customer number can only ever appear once in the customers table as each new customer will need a new unique identifier. A customer number can appear multiple times in the bookings table as a customer may make multiple bookings over time.* |

(1 mark)

Which of the fields would be the primary keys? Why?

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| *Customer No (customer table), booking number (bookings table) and tour no. (tour table).*  *A primary key in a table must be a unique identifier that can be used to represent a certain record. Use of names is not appropriate for primary keys as they can occur more than once.* |

(2 marks)

Why should security of the data collected by Charlton Travel be an issue? Give two examples of security measures that could be used to protect the data.

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| *Data needs to be kept secure for a number of reasons including maintaining competitive advantage, avoiding damage to reputation, ensuring business operations are not affected and due to the restrictions of the privacy legislation.*  *Methods of data security include password, firewalls, encryption, locked rooms etc.* |

(2 marks)

What query might the organisation want to make in regard to the data stored?

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| *Find all tours to a Bali in August.*  *Sort in order of price the accommodation choices for a particular tour.* |

(1 mark)

Give an example of two reports that the organisation may want to be produced from the database?

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| *List all members of a particular tour.*  *List of customers who haven’t confirmed bookings.* |

(1 mark)

Outline two design principles that could be incorporated into the reports discussed in the previous question.

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| ***Outline*** *two of the following: alignment, repetition, contrast, space, balance, usability, flexibility & ease of use and accessibility.* |

(2 marks)